Dairy Industry: *Crystalized whey transfer to balance tank and dryer feed*

Few Highlights of Case Study

Our client from the dairy industry was struggling with frequent downtime and inefficiencies in transferring crystallized whey due to issues with their existing pump. They sought a reliable, easy-to-clean solution to optimize production during peak seasons – and Fristam FDS Twin screw pump delivered.

The FDS Twin Screw Pump is designed to handle both high and low viscosities with ease by using revolutionising twin-screw technology. It has powerful suction and pressure capabilities that makes sure that the product is smoothly transferred, even under high pressures, without overheating. Built for production efficiency and CIP (Cleaning-In-Place) processes, it also reduces cleaning times and labor costs. With a focus on maximum hygiene, including aseptic applications, the pump reduces contamination risks. Its non-contacting screw design minimizes wear, making maintenance and repairs simple and cost-effective. Compact and versatile, Twin Screw Pump optimizes performance and reliability during peak production seasons.

Where the Problems Began?

The client used a single screw progressive cavity (PC) pump for transferring crystallized whey for balance tank and dryer feed application. Due to the abrasive nature of the whey, the pump experienced frequent **stator wear out,** causing repeated replacements. The pump was also not CIP (Clean in place) capable, and the failure of stator components resulted in inconsistent flow and pressure. This led to significant downtime and **heavy** production losses during peak seasons.

Research and Insights

Fristam's sales team carefully analyzed the client's existing pump performance by measuring key process parameters like flow, pressure, and cleaning requirements. During their observations, they found that the current pump struggled with the challenges of transferring crystallized whey, leading to breakdowns, inconsistent flow, and lengthy cleaning processes. It became clear that a more robust, efficient, and easy-to-clean solution was needed.

Finding the Right Solution

To address these issues, Fristam recommended FDS Twin Screw Pump. Designed from SS 316L parts with diffusion-hardened screws and casing, the pump offered superior resistance to abrasive materials, eliminating wear and tear concerns. Its in-line CIP capability made cleaning easy without opening, saving time and the absence of rubber stator parts completely removed contamination risks.

Implementation

The Fristam team sent a brand new FDS Twin Screw Pump to the customer along with full service and technical support to put the pump in the system for the trial run of almost 5-6 months. Initially, the client had concerns about the performance and requested a free trial period to assess whether the pump met their needs and after 6 months of free trial run customer will purchase the pump, consequently, fristam agreed and provided pump and dedicated technical assistance throughout the trial on mutual agreement. Any concerns were addressed promptly, and the customer was able to see the pump's effectiveness firsthand, leading to a successful implementation.

Measurable Impact & Results

After implementing the Fristam FDS Twin Screw Pump, the client saw a significant improvement in operations. Spare part costs, which had been ₹50,00,000 annually, were drastically reduced as frequent replacements became unnecessary. Maintenance downtime was nearly eliminated. The CIP functionality automated cleaning, saving time and labor. Consistent flow and pressure improved production reliability, and contamination risks were fully mitigated.

Before and after comparison

	Before (Old Technology)	**After (Fristam FDS Twin Screw Pump)**
Spare Part Costs	₹50,000-₹70,000 per month due to frequent stator replacements.	₹0, with no spare part replacements needed.
Maintenance Downtime	Frequent due to stator wear and tear.	Virtually eliminated, ensuring uninterrupted operations

Ease of Cleaning	Not CIP-capable; cleaning was time-consuming and labor-intensive.	Inline CIP functionality made cleaning seamless
Performance Reliability	Inconsistent flow and pressure	Consistent flow and pressure ensured optimal performance
Contamination Risks	High due to rubber stator parts	Zero contamination risk with no rubber parts

The Way Forward

The Fristam FDS Twin Screw Pump provided the client with a reliable and efficient solution to their longstanding operational issues. By combining durability, consistent performance, and CIP compatibility, the pump optimized production processes and delivered measurable improvements without disruptions. Fristam's tailored approach enabled seamless integration into the client’s workflow, setting a new standard for reliability in handling crystallized whey and ensuring uninterrupted operations during peak production seasons.

In addition, our comprehensive technical support and timely assistance, from installation to the final process with measurable outcomes, have solidified our partnership for long-term success in their production environment.